

Patent claims

1. Process for producing packs (10), in particular cigarette packs of the hinge-lid type, with an outer wrapper made of (transparent) film and with a tear-open strip (12) applied to the outer wrapper, blanks (11) for the outer wrapper being severed from a continuous film web (13) with tear-open strip (12), characterized by the following features:
 - a) a continuous material strip (18) for producing the tear-open strip (12) is provided with precisely positioned printing, markings (24) or the like,
 - b) the printing, markings (24), etc. are sensed by a sensor – printed-mark reader (26),
 - 10 c) the precise position of the tear-open strip (12) on the film web (13) and/or a severing cut for severing the blanks (11) with tear-open strips (12) from the film web (13) is controlled in accordance with the detected printing, markings, etc.
2. Process according to Claim 1, characterized in that the film web (13) (also) has printing, markings, printed marks (25) or the like, and in that said printing, printed marks (25), etc. are sensed by sensors – printed-mark readers

(30) – preferably by separate printed-mark readers (30) assigned to said printing or printed marks (25) of the film web (13).

3. Process according to Claim 1 ~~or 2~~, **characterized in that** the printing, markings (24) and/or printed marks (25) sensed by the sensors or printed-mark readers (26, 30) are evaluated for the purpose of controlling the drive of the film web (13) and/or of the material strip (18).

4. Process according to Claim 1, **characterized in that**, for the purpose of changing the position of the tear-open strip (12) and/or of the printing, markings (24), etc. applied thereto, the tear-open strip (12) or the material strip (18) for producing the tear-open strip (12) is extended or lengthened.

5. Process according to Claim 1, **characterized in that**, in the case of double-web operation – namely during the synchronous production of two blanks (11) by severing them from two parallel film webs (13), each with a tear-off strip (12) – two material strips (18) are in each case drawn off from an associated reel, namely single reel (46, 47), or from a common strip reel (45) and are guided during transport to the two film webs (13) at a distance from one another corresponding to the position on the two film webs (13) and at the same time are laid on the film webs (13) with the corresponding position of the markings (24).

6. Apparatus for producing packs (10) with an outer wrapper made of, in particular, transparent film and with a tear-open strip (12) applied to the outer wrapper and preferably likewise consisting of transparent film, it being possible for blanks (11) for the outer wrapper to be severed from a continuous film web (13) with tear-open strip (12) applied thereto, **characterized by** the following features:

- a) the material strip (18) for producing the tear-open strips (12) is itself already provided with printing, markings (24), printed marks or the like,
- b) in the case of the film web (13), sensors – printed-mark readers (26) – are positioned in the region of the movement path of the material strip (18) connected to the film web (13), or of the tear-open strip (12), for the purpose of sensing the printing, markings (24), etc. on the material strip (18) or on the tear-open strips (12),
- c) the sensors – printed-mark readers (26) – are connected to an evaluation unit for evaluating the detected positions of the printing, markings (24), etc.,

d) drive elements for the material strip (18) and/or the film web (13) can be controlled by the sensors or printed-mark readers (26) via the evaluation unit.

7. Apparatus according to Claim 6, **characterized in that** at least two sensors – printed-mark readers (26, 30) – are provided for the purpose of sensing printing, markings (24), printed marks (25), etc. both of the material strip (18), or of the tear-open strips (12), and of the film web (13), printing, printed marks (25), etc. of the film web (13) being positioned in an offset manner in relation to the material strip (18) or to the tear-open strips (12).

8. Apparatus according to Claim 6 or 7, **characterized in that** conveying elements for the material strip (18) and/or the film web (13) provided with material strip (18) and/or tear-open strip (12) can be controlled by the sensors – printed-mark readers (26, 30) – in respect of changing the drive speed of the film web (13) and/or material strip (18).

9. Apparatus according to Claim 8, **characterized in that** conveying rollers (31, 37) and/or drive rollers (28) assigned to the film web (13) and/or the material strip (18) can be driven by controllable servomotors (29, 33), it being possible for the servomotors (29, 33) to be controlled by the printed-mark readers (26, 30).

10. Apparatus according to Claim 9, **characterized by** the following features:

- 20 a) a controllable drive roller (28) is arranged in the region of the film web (13), provided with tear-open strip (12) or material strip (18), preferably immediately upstream of a blank station (14),
- b) a further controllable conveyor roller (31) is positioned in the region of the material strip (18),
- 25 c) the two drive elements – drive roller (28) and conveying roller (31, 37) – can be controlled by sensors – printed-mark readers (26, 30) – assigned to the tear-open strips (12) or the material strip (18), on the one hand, and to the film web (13), on the other hand.

11. Apparatus according to Claim 10, **characterized in that** a controllable conveying roller (37) for the material strip (18) is positioned adjacent to a severing subassembly for severing tear-open strips (12) from the material strip (18), in particular adjacent to a cutter roller (36).

12. Apparatus according to Claim 6, characterized in that it is possible to produce blanks (11) with tear-open strips (12) in double-web operation, it being possible to produce from a double web (39), by severing it centrally, two parallel film webs (13) and from a double strip (41), by severing, two parallel material strips (18), and it being possible for the two film webs (13) and material strips (18) to be controlled by common sensors – printed-mark readers (26, 30) – by way of separate conveying elements.

13. Apparatus according to Claim 6, characterized in that, for double-web operation, two separate material strips (18) can be drawn from a common strip reel (45) while being directly adjacent to one another in each case, or from two separate, single reels (46, 47) arranged adjacent to one another, with the material strips (18) at a distance to one another, and can be fed to the two film webs (13), with the material strips (18) being transferred to the film webs (13) by means of guide members spaced at an precise distance from one another.

15 14. Apparatus according to Claim 13, characterized in that, as two separate
material strips (18) are drawn off from a common strip reel (19), deflecting
elements are provided for the purpose of deflecting in a transversely directed
manner the material strips (18), which are fed closely together, at a distance apart
from one another which corresponds to the sheet webs (13), preferably guide
20 rollers (59, 60, 62).

15. Apparatus according to Claim 13, characterized in that, in double-web operation, two reels, namely single reels (46, 47), each for a material strip (18) are arranged on a common carrier, in particular on a common, continuous reel sleeve (63), on a common bearing journal (65), such that the single reels (46, 47) always execute corresponding rotary movements as the material strips (18) are drawn off.

16. Reel for material strips (18) for the production of a tear-open strip (12) to be attached to a blank (11), with the material strip (18) drawn off the reel is laid on a film web (13) and it being possible to sever the blanks (11) with tear-open strip (12) from the latter, **characterized in that** in order to feed two material strips (18) to one film web (13) (each) the two material strips (18) are wound on a common carrier, in particular on a common reel shell or on a common reel core (63).

17. Reel according to Claim 16, characterized in that two single reels (46, 47) are wound on the common reel core (63) at a slight distance from one another, preferably with a matching winding structure.

18. Reel according to Claim 16, **characterized in that** two immediately adjacent, parallel material strips (18) can be wound on a single, common strip reel (45) and can be drawn off together as a unit.

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